

# Sunshine Coast Open Space Landscape Infrastructure Manual

## Boardwalks and viewing platforms

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## 1.0 Overview

This category of the LIM has been developed to provide guidance for the design and construction of boardwalks and viewing platforms.

This category addresses the following:

- **Boardwalks**
- **Viewing platforms**



Important notes:

- This resource does not try to replicate all of the provisions of Legislation, Australian Standards (AS) and corporate documentation in words and pictures, nor does it seek to define their requirements.
- Please refer to the relevant authority websites for updated information and current document distribution dates. These documents are subject to amendments from time to time.
- Product design, manufacture and installation requires appropriately qualified professional, fabricators and installers to provide site specific solutions.

## 2.0 Location and open space function

### Desired standards of service (DSS)

DSS provide a guide, at a strategic level, for the desired standards required for Council land, infrastructure and natural assets, being purchased, contributed, developed or managed.

### SC Environment and Liveability Strategy (ELS)

The ELS contains the DSS for open space and provides a guide to what type of park/reserves are suitable for the various categories of embellishment.

Refer to [SC ELS 2017 Part C](#).



The ELS provides guidance, specifically for Open Space (including Environment Reserves). The DSS for each theme includes:

- introduction of categories
- guidelines – to be applied in planning, design and management
- category standards – detailed description and standards /requirements for each category.

The DSS may also include:

- land suitability – land requirement criteria and constraints
- category directions – specific planning directions
- summary of the DSS (Coastal, Open Space and Social Infrastructure) – a quick reference to provision rates and standards
- embellishments (environment reserves and open space) – tables providing standard embellishments applicable to these categories which help inform acceptable activities/infrastructure needs.

### SC Recreation Parks Plan (RPP)

The RPP provides a more detailed guide for the location, quantity, distribution and size of embellishments for Recreation Parks.



Refer to [SC RPP 2021-2031](#).

The RPP provides guidance for the location of activities and embellishments in relation to:

- **appropriate activity** and **level of embellishment** for each park type
- **quantity** (recommended number of facilities in each locality, recommended number of associated embellishments for each category)
- **distribution** (catchment for provision of activity where relevant)
- **size** (optimal space requirement where relevant).

### Open Space Landscape Infrastructure Manual (LIM)

Once the location/requirements are decided, the LIM provides guidance for the design and delivery.

## 3.0 Quick reference guide

### Boardwalks and viewing platforms

Embellishments should be designed / selected and installed as follows:

- 1 Fit for purpose, appropriately positioned and accessible.
- 2 Durable, robust and safe (suitable for corrosive environments).
- 3 Vandal resistant with parts that are easily replaceable.
- 4 Easy to maintain (with appropriate warranty and workmanship).
- 5 Comply with relevant standards / legislation / corporate documents / approvals.

**Note:** Further guidance and clarification of the content on this page, can be found in the relevant sections of this information sheet.

### Planning / design / positioning

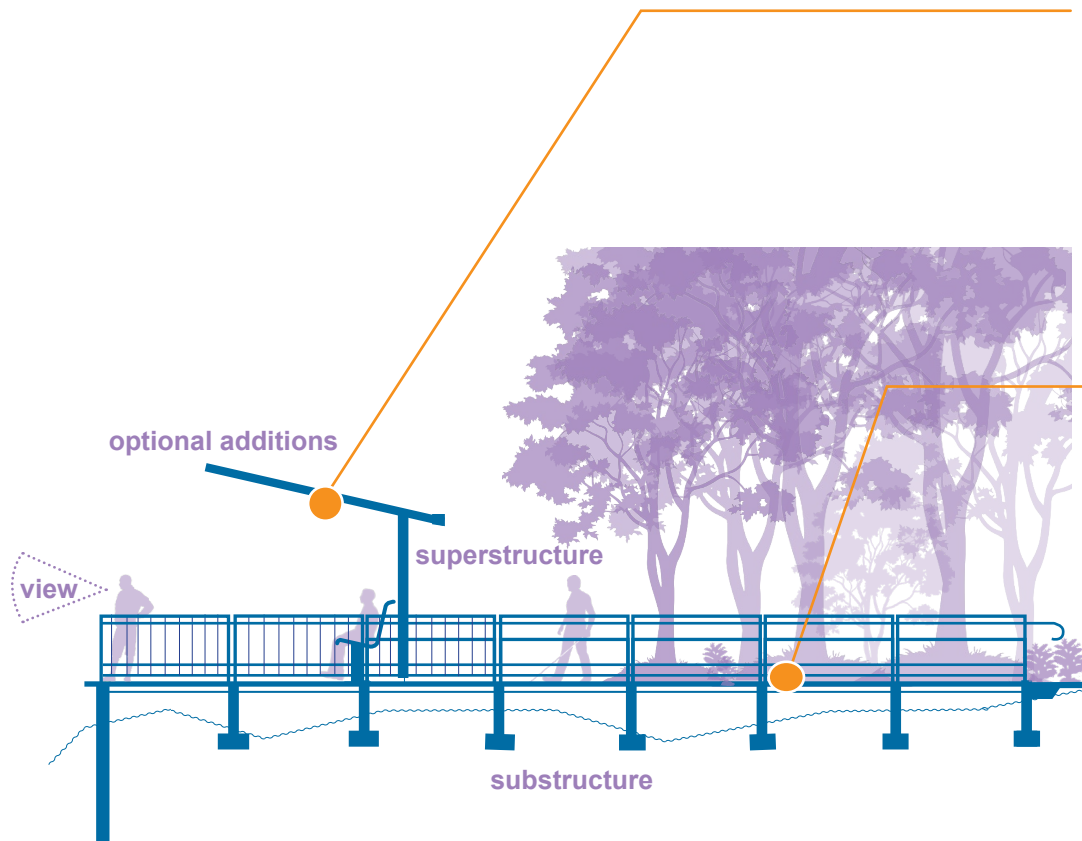
- Geotechnical investigation is required to determine foundation conditions
- Link boardwalks and viewing platforms to a universal access pathway where possible
- Select a boardwalk to protect an environmentally sensitive site or to bridge across existing tree root systems
- Design specifications – *Australian Standards* and *National Construction Code (NCC)*
- Consider a shelter over viewing platforms for shade. See *LIM Shelters*
- Select design loads to accommodate crowd loading, site specific maintenance vehicle access to viewing platforms and decks, handrail and balustrade, future additions such as lighting
- Embellishments must not pose a hazard to the public e.g. entrapment or encourage climbing. Maintain pedestrian and cyclist clearances
- *Safety in Design* requirements must be met
- Select and specify a timber species which is tough, stable, durable and resistant to UV degradation. Consider non-timber materials
- Consider a 5% over-order of decking materials for future maintenance purposes

### Boardwalk and viewing platform requirements

- Substructure members – footings, piers, pier cap, bearer, joists, boardwalk to pathway transition
- Superstructure members – decking, barrier, railing, kerbs, seats, shelters
- Optional components – shelters, seats, lighting, furniture, artwork
- Elevated boardwalk requires handrail and balustrade (depends on calculated fall height)
- Low / on ground boardwalk requires kerbs both sides to prevent wheeled devices from running off the edges
- Timber structures require careful detailing

### Finished surface and fixing method

- Footings / foundations require site specific design based upon geotechnical results
- Fasteners are to be true 304 or 316 grade stainless steel. Holes to be pre-drilled
- Timber boardwalk to concrete terminations must be designed to prevent trip hazards and excessive gaps opening over time



## 4.0 Site planning

Best practice guidance for site planning includes:

### Decision framework

There are a range of Australian Standards / best practice guidelines, relating to this category. Key documents are referenced throughout and in the 9.0 *Recommended standards* section.

### Site decisions

All decisions, including the location of boardwalks and viewing platforms and related infrastructure, must be made in conjunction with council, including officers from SCC Civil Asset Management, Parks and Gardens, and/or Environmental Operations (determined by site location).

### Users

Consult with council stakeholders, neighbouring properties and identified park users in the planning stage of a project.

### Site conditions

Consider the physical characteristics of a site and requirements of the activities to be conducted:

- location of utilities
- flood immunity requirements.

Varying site characteristics influence orientation and design, including:

- site topography.
- subsurface conditions and soil bearing capacities.

- preservation of significant and existing natural areas.
- preservation of existing vegetation.
- environmental factors.

### Co-location of facilities

- Facilities, including parking and pathways, are often already established and need to be considered in the overall park design.
- Include connecting pathways for universal access and provide shade where possible.

### Safety

- *Adopt principles of Crime Prevention Through Environmental Design (CPTED) Guidelines for Queensland.* Locate boardwalks and viewing platforms to allow users to feel safe, and to provide an opportunity for casual surveillance.

### Potential site conflicts

Locate boardwalks and viewing platforms away from:

- High use bikeways, busy roads and steep slopes, to avoid accidents.
- Hazards such as waterways, fire and flood prone areas, sewers and stormwater drains, underground services, power poles and overhead power lines.

### Planning for future works

- Co-locate embellishments requiring similar services eg water, to reduce infrastructure, where possible.
- Where underground utilities are installed, set brass markers to concrete slab edges to indicate the location.
- Consider installation of additional conduits under concrete slabs for future provision, where utilities (eg. electrical, water) and irrigation systems are planned. Ensure additional conduit is capped to prevent ingress of water and debris.
- Consider climate change impacts on embellishment location and construction<sup>1</sup>.
  - In coastal areas, or near waterways, design should consider rise in sea level predictions, storm tide, salt inundation and severe storm events.
  - Positioning should also consider flooding, seasonal/ephemeral water bodies and water table changes.
  - Near bushland areas, design should consider the occurrence of bushfires.

<sup>1</sup> Sunshine Coast Environment and Liveability Strategy 2017

## 5.0 Design requirements

Best practice guidance for the design, manufacture and installation of embellishments includes:

### Good design

See the following corporate documents to identify relevant project design requirements:

#### Sunshine Coast Planning Scheme

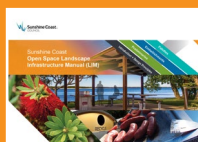
regulates the way land, buildings and structures are used and developed on the Sunshine Coast. It outlines a range of design outcomes for new development.



**Sunshine Coast Design** contains 10 design principles that guide good project planning and design outcomes, that are appropriate for the Sunshine Coast.



#### Open Space Landscape Infrastructure Manual (LIM)



**Introduction and design principles**, including:

- Introduction, strategic and planning framework
- Design principles eg. Sustainability, CPTED, Accessibility.
- Relevant standards / guidelines

**Preliminaries** including:

- Environmental management of fauna and flora
- Site set up (including tree protection)
- Tree sensitive design (existing and new trees).

### Embellishment requirements

#### 1 Fit for purpose, appropriately positioned and accessible

- Universal access.
- Comfortable and suitable for the average person.
- See 7.0 *Positioning guidance* and 8.0 *Equal access requirements*.

#### 2 Durable, robust and safe (suitable for corrosive environments)

- Made from materials that will be durable and can be suitably protected from exterior elements, such as salt spray and UV exposure.
- Robust and sturdy to withstand constant public use and be resistant to vandalism.
- Fixings are to be 316 marine grade stainless steel (unless otherwise stated).

#### 3 Vandal resistant with parts that are easily replaceable

- Tamper proof fixings should be used.
- Graffiti protection coatings applied (where applicable).
- Fire retardant (where applicable).

#### 4 Easy to maintain (with appropriate warranty and workmanship)

- Warranties should be as listed below.
- Easily repairable or replaceable.
- Sourced locally and use standard fittings.
- Reputable suppliers should be used who keep a supply of stock parts on hand for the life of the product.
- Use sustainable materials, although sustainability needs to be considered over the lifetime of the embellishment.
- Install on paved, concrete or other hard surfaces (where applicable).

#### 5 Comply with relevant standards / legislation / corporate documents / approvals

- Manufactured to engineering specifications (where applicable).
- See 9.0 *Recommended standards*.

### Warranty and asset life

Product / embellishment	Warranty (minimum)	Asset life (typical useful life)
Recycled plastic	10 years	25 years <sup>2</sup>
Aluminium	varies	20-30 years <sup>2</sup>
Timber	N/A	20 years <sup>2</sup>
Stainless steel	varies	25 years <sup>2</sup>
Concrete	varies	25 years <sup>2</sup>
Fibre reinforced plastic	varies	not available

<sup>2</sup> Sunshine Coast Council Asset Management Plan 2017/18-2022/23 – Parks and Gardens (figure is based on current data, subject to change)

## Boardwalks and viewing platforms

Once the location of the boardwalks and viewing platforms has been decided, based on the ELS and RPP guidance, consider the appropriate embellishment level to suit the selected site.

### Design considerations:

- All open spaces should include universal access (eg. provide ramped access)
- Boardwalks and viewing platforms provide all weather access to an area or across an area which may otherwise be inaccessible, particularly for people with a disability. They comprise a horizontal decked walkway or platform on pier or piled footings, or on-ground.
- This document provides general guidelines only and does not cover comprehensive specific technical detail about constructing boardwalks and viewing platforms.
- Design must be certified by a Registered Professional Engineer Queensland (RPEQ).



## Boardwalk and viewing platform design

- Consider coastal / hydraulic processes.
- Geotechnical investigation is required to determine foundation conditions for the design of supports.
- Materials selected must be suitable for use in low lying areas that have the potential to become waterlogged. Structures should be above extreme tides, storm surge and flood levels (where possible).
- Where a boardwalk is subject to tidal inundation, design the boardwalk so that it dries as soon as possible after getting wet.
- Consider composite materials FRP (fibre reinforced plastic) at locations such as beach accesses and wetlands.
- Design the structure so that it is self-cleaning without fixed elements that block the flow of water and leaf litter.
- Timber boardwalks and viewing platforms should have a rough sawn face to provide sufficient slip resistance.
- Consider that aluminium, stainless steel and recycled materials may be hot underfoot.

### Coastal management district

The environment must be considered and protected before any development or construction is undertaken.

Boardwalk and viewing platforms near beaches should be planned and designed to protect the surrounding environment whilst providing a safe path of travel for the public. Consider sand blow. An appropriate boardwalk treatment will minimise negative impacts on the coastal environment.

### Environmental / tree protection

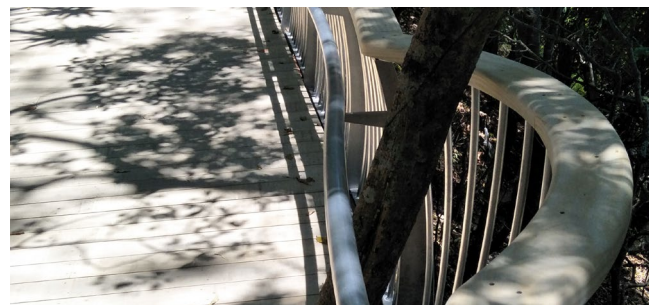
Boardwalks limit pedestrian activity and protect sensitive areas and environments.

Where an area of tree root conflict exists, a boardwalk section over the affected area may be appropriate.

- Protect trees by elevating a boardwalk over existing tree root systems to:
  - minimise excavation and site disturbance
  - minimise compaction to prevent de-oxygenation of soils
  - retain water and nutrient availability for trees
  - room for continued growth of tree roots without risk of damage to infrastructure
  - preservation of soil structure
  - protect structural root systems.
- Use a flexible construction to allow the design to work around trees and tree roots.

See the following for further guidance:

- *LIM Preliminaries – Tree sensitive design (existing and new trees)*
- *Figure 1: Handrail shaped around existing tree.*



**Figure 1: Handrail shaped around existing tree**  
(for guidance only – site specific design required)

### Recreational

- Appraise the opportunity for a boardwalk or viewing platform to provide equal access walking / cycling / viewing appreciation of the natural environment at the following locations:
  - nature trails
  - watercourses
  - wetlands
  - sensitive coastal environments
  - flora and fauna.
- Select appropriate locations for viewing platforms to provide rest and the opportunity to showcase natural areas.
- Install seats which are off the boardwalk path of travel or at the edges of wider boardwalks. Select intervals to provide rest opportunities for a wide range of abilities (recommend 60m apart for older people).

See *Figure 2: Rest seating off a boardwalk.*



**Figure 2: Rest seating off a boardwalk**  
(for guidance only – site specific design required)

## Design loads

### Light vehicles / pedestrians / cyclists

Boardwalks and viewing platforms must be designed to provide access for light vehicles to undertake maintenance and at site specific locations for emergency vehicles.

Design must comply with all relevant Australian Standards, codes and design guidelines.

- Live load is the dynamic load imposed by vehicles, pedestrian and other users that can change over time. Live loads are variable as they depend on usage and capacity.
- Point load is an established load located at a single point on a supporting structure.
- Dead load is the self-weight of the structure by itself (excluding users), resting on the abutments and piers.
- Comply with *Safety in Design* requirements.
- Apply the design criteria producing the safest possible results that also meet *Work Health and Safety* requirements.

### Boardwalks

Boardwalk members are to be designed for strength to support a combinations of factored loads and forces.

- Geotechnical investigation is necessary to determine the foundation conditions for the design of footing supports to withstand anticipated loadings.
- Consider boardwalks to be continuous viewing platforms for design loading purposes.
- Consider user groups such as:
  - pedestrians
  - cyclists
  - motorcycles
  - quad bikes
  - golf buggies
  - incidental vehicle access
  - maintenance vehicles / emergency vehicles.
- Consider the likelihood of crowd loading on any section of a boardwalk.
- Boardwalks must be designed so they do not impose lateral loads on adjacent structures such as existing seawalls.
- Boardwalks may be required to conform to the *BCA (Building Code of Australia)* where they form part of access to, or between buildings, or to Austroads Bridge code where they form an extension to a bridge.

### Viewing platforms / fishing platforms

Design for viewing platforms must be engineered as per boardwalks including consideration to:

- Suit variables and attributes of the proposed location.
- Limit pedestrian interaction on sensitive environments.
- Consider the likelihood of crowd loading such as photography of a large group, and crowd panic behaviour.
- About 1.35 kN load equates to a walker with a full backpack (British Code).
- Dedicated public fishing platforms are constructed at popular fishing locations, particularly for inexperienced and family anglers and those without boats. Where possible they should include handrails with provision for resting fishing rods.
- Fishing associated embellishments should be located nearby, such as:
  - taps
  - fish cleaning tables
  - general and recycle waste bins
  - tackle disposal bins.

## Glossary of structural components

Boardwalks and viewing platforms consist of the following components:

### Substructure

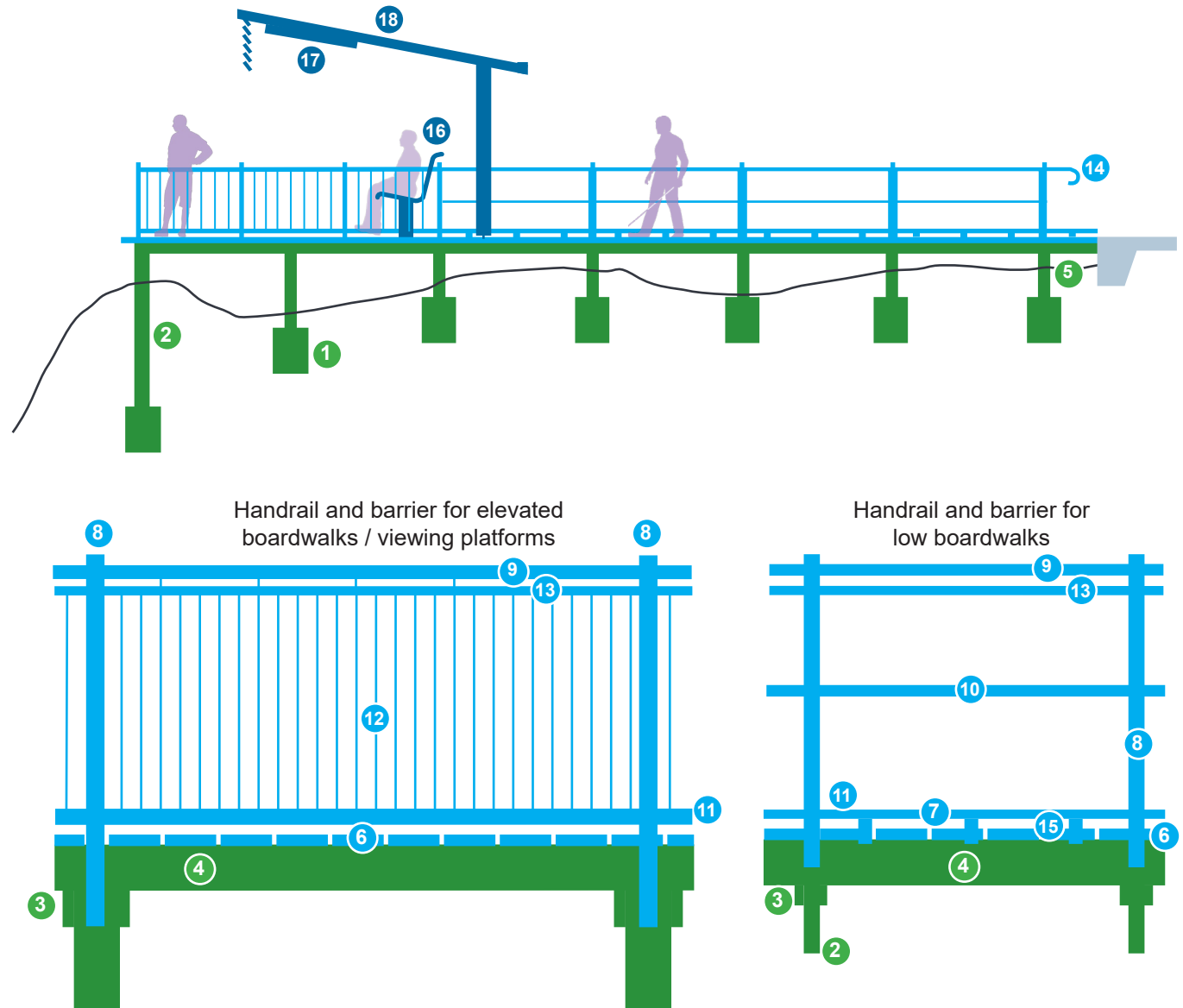
- 1 foundation and footing
- 2 pier / pile / post
- 3 bearer / double bearer / headstock
- 4 joist
- 5 boardwalk to pathway transition

### Superstructure

- 6 deck
- 7 kerb rail (edge restraint)
- 8 balustrade post / stanchion
- 9 top rail
- 10 middle rail
- 11 bottom rail
- 12 baluster (infill)
- 13 handrail / bicycle rail (rub rail)
- 14 handrail termination
- 15 kerb block

### Optional additions

- 16 seat
- 17 lighting
- 18 shelter



## Substructure (supporting structure)

### Foundation and footings

Foundations describe various types of support to a structure such as:

- Strip footings
- Screw piles
- Driven piles
- Bored piers.

Footings are a below ground base which distributes the load and forces of the structure over a wider area of the natural rock or sub-soil. See *Figure 3: Example - foundation / pad / strip footings* for further guidance.

Footings must be rigid enough to protect the boardwalk from foundation movement.

- If the local surface is capable of supporting the structural loads, pad footings or strip footings may be used.
- Pad footings comprise a pad used to support a pier or post.
- Continuous footings take the form of a continuous linear slab or strip that supports uniformly distributed loads.
- RPEQ certification is required for any structural elements.



**Figure 3: Example – foundation / pad / strip footings**  
(for guidance only – site specific design required)

### Pier / pile / post

A pier is a post like vertical foundation member which secures the structure and transfers structural loads to the foundations.

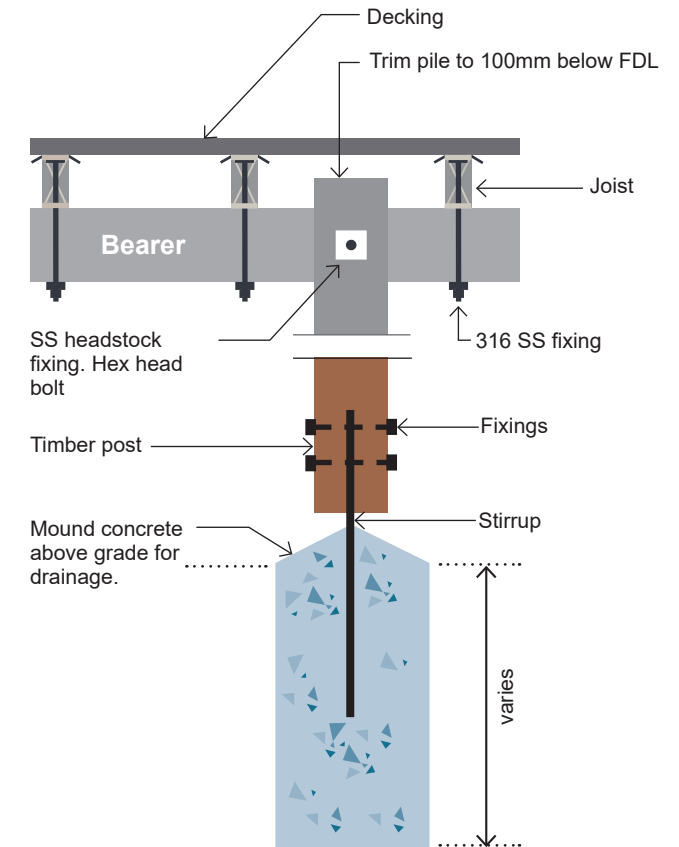
- If the local ground / subgrade cannot support the structure, piles or piers are used to transmit the load to a foundation at a greater depth that can support the loads.
- Screw piles are mechanically screwed into the soil and can be used as stumps for a raised platform.
- Piles must be capable of resisting uplift loads (buoyancy, wave loads etc.) applied to the boardwalk structure, where required.
- Consider tolerances when designing elements to be connected to the boardwalk at a future time such as lighting, balustrade, seats, shelters, and fauna hides.
- Set out posts, bearers and joists to allow predetermined lengths to be used.
- RPEQ certification is required for the design and installation of boardwalk footings and piles.

See the following:

- *Figure 4: Example - posts of a boardwalk*
- *Figure 5: Typical pier footing detail*



**Figure 4: Example – posts of a boardwalk**  
(for guidance only – site specific design required)



**Figure 5: Typical pier footing detail**  
(not to scale – for guidance only – site specific design required)

### **Bearer / double bearer / headstock**

A bearer is a horizontal, load supporting structural member.

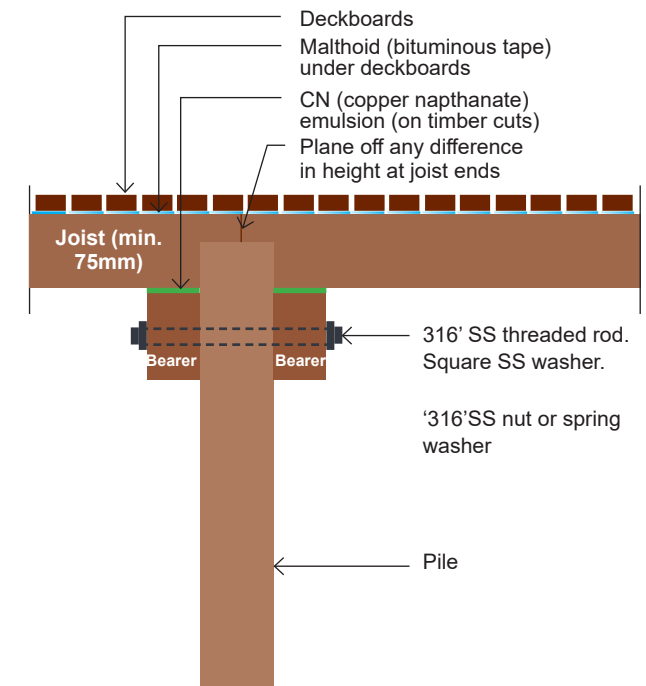
- A timber, concrete, composite material, stainless steel, aluminium or HDG (hot dipped galvanised) steel bearer is attached to the posts that support the deck.
- Bearer size and fixing of the bearer to the post, is important for the durability of the structure.
- Minimum 75mm wide hardwood is preferred for good bolting practice. Refer engineer's specifications.
  - Use 3M tape (or equivalent), or bitumen filler in checks
  - Use malthoid strip (or approved equivalent) on cuts
  - Select horizontal versus vertical bolting where possible.
- Twin bearers (headstocks) work well for boardwalks taking heavier loads, and facilitate:
  - joist lapping
  - predetermined joist and deck lengths.
- In heavier decks and boardwalks stainless steel angles with horizontal bolting is preferred.

### **Joist**

Joist is a horizontal load supporting structural member which supports a floor / deck timbers.

- Joists are the members attached across the bearers to which decking boards are attached.
- Design the boardwalk for predetermined lengths of joists to save material and allow predictable fixing locations for decking.
- Lapping of joists other than edge joists allows predetermined lengths of joists.
- Joist material can be timber, metal, concrete or composite materials.
- When using timber joists, select minimum 75mm width hardwood for external exposed to weather decks and boardwalks, to prevent splitting at deck screws. (50mm wide is insufficient).
  - Select royal species only such as *Ironbark*, *Spotted Gum*, *Tallowood* and *Satinay*.
  - Use aluminium and bitumen tape, malthoid strip (or approved equivalent) on top of timber joists to prevent water entry into the top of the joist.
  - Stagger fixings into joist to avoid splitting the joist.

See Figure 6: Typical double bearer / headstock pile connection.



**Figure 6: Typical double bearer / headstock pile connection**

(not to scale – for guidance only – site specific design required)

### Boardwalk to pathway transition (timber to concrete)

Where a timber boardwalk transitions to a concrete walkway / pathway, the discontinuity is prone to vertical displacement.

Timber boardwalk to concrete transitions must be designed to control differential movement once timber shrinkage occurs.

Risk of a vertical or horizontal displacement resulting in a pedestrian trip hazard or cyclist hazard may be reduced (where possible) by providing the following:

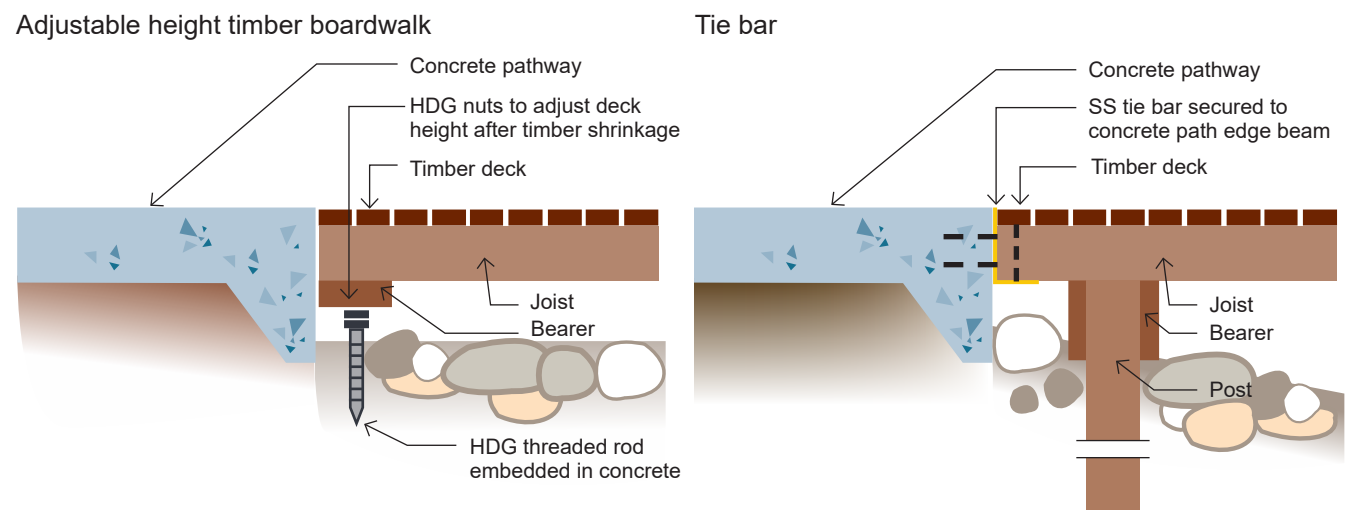
- Threaded rods with nuts to mechanically adjust the height of a boardwalk.
- Physical interlocking such as a stainless steel tie bar.

See the following:

- *Figure 7: Typical timber to concrete pathway transition*
- *Figure 8: Alternative timber to concrete pathway transitions*



**Figure 7: Typical timber to concrete pathway transition**  
(for guidance only – site specific design required)



**Figure 8: Alternative timber to concrete pathway transitions**  
(not to scale – for guidance only – site specific design required)

## Superstructure (upper part of the structure)

### Deck

Decking is the material forming a horizontal platform for walking / cycling. Decking boards span the area over the joists and form the deck floor.

- Materials include treated timber or naturally durable timber, FRP (fibre reinforced plastic), concrete, aluminium, recycled plastic. Wood plastic composite is not preferred.
- Clear width for a boardwalk deck between edge restraints or handrail and balustrade varies.

See *LIM Paths, trails, tracks* for further guidance

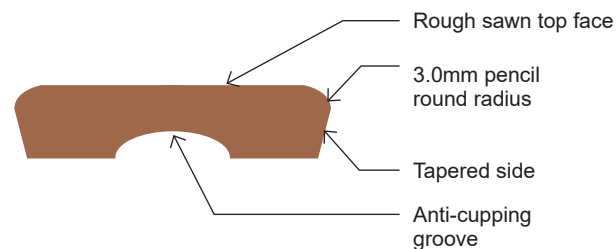
### Fibre reinforced plastic (FRP) deck, aluminium deck, concrete deck

Refer manufacturer / supplier for details and installation method.

### Timber

Timber decking should be Royal Species, a collection of timbers with proven natural durability and strength. Select *Ironbark, Spotted Gum, Tallowood and Satinay*, rather than strength F11, F14, F17. **No Blackbutt.**

- Where vehicle movement or parking is expected, select thicker boards such as 120 x 35mm or 145 x 45mm with natural sawn face and arrised edges. These can be rough sanded if required to improve slip resistance.
- Decking boards are to have 3.0mm arris or pencil round to top edges, and tapered sides.
- Boards are to have a clear face - no longitudinal or radial shelling, knots or surface gum veins.
- Deck boards are to be laid heart down to prevent cupping. Do not lay reeded deck boards face up as they will rot quickly.
- Treat all cut ends with CN emulsion.



**Figure 9: Typical deck board**

(not to scale – for guidance only – site specific design required)

See the following:

- *Figure 9: Typical deck board*
- *Figure 10: Typical timber deck.*



**Figure 10: Typical timber deck**

(for guidance only – site specific design required)

### Timber deck construction

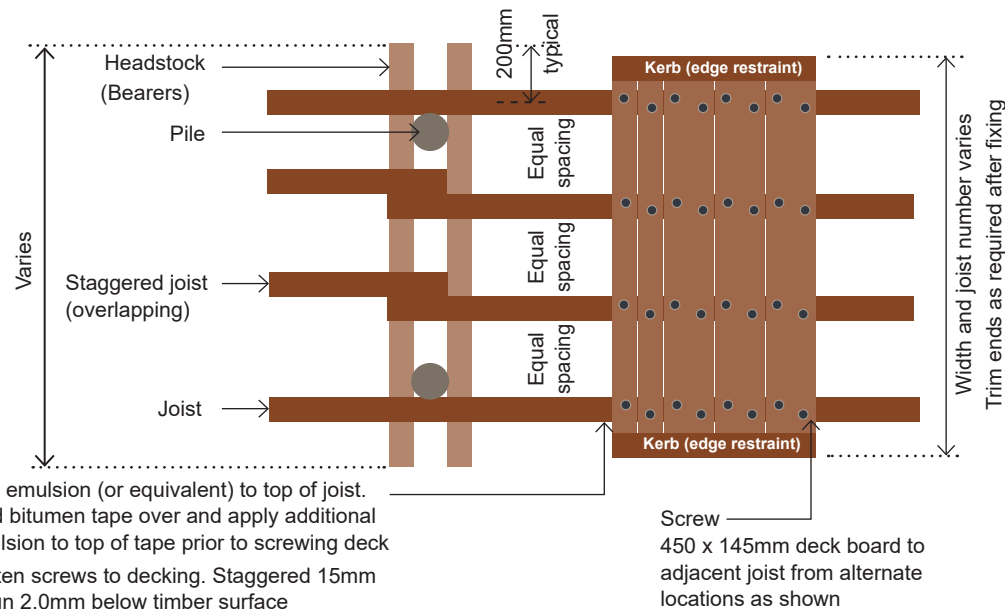
The deck laying gap is the calculated allowance between decking boards before they are fixed to joists. The laying gap considers the anticipated shrinkage of a particular timber species as well as the proposed deck board dimension, together with the requirements of Standards and guidelines. Decking gaps allow water and debris to shed off the deck surface.

- Example to determine deck timber laying gap:
  - unseasoned *Spotted Gum* or *Ironbark* decking timber up to 145mm wide, expected shrinkage is 6%. Approximately 9mm (across the board).
  - Deduct the expected shrinkage from the target gap to calculate the laying gap.
- *AS 1428 Design for Access and Mobility Standards (the set)*, allow a maximum 10mm gap in decking boards (after shrinkage).
- Select seasoned timber for a 3.0mm target gap (where high heels are expected). **Do not use Blackbutt as it undergoes up to 12% shrinkage.**
- Screw decking boards to joist with a staggered pattern and pre-drill joist to prevent splitting of joists.
- Ensure the deck screwing pattern is detailed in full on design drawings.

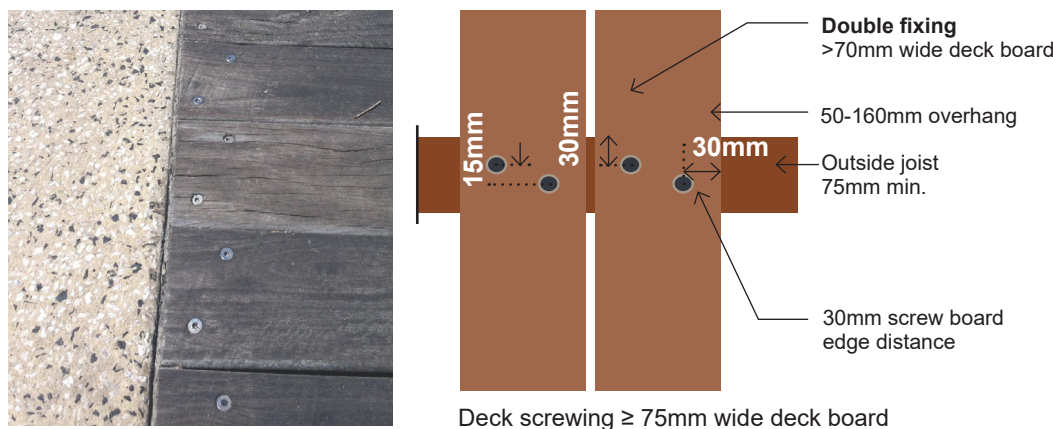
See the following:

*Figure 11: Typical deck construction (45 x 145mm deck timber where vehicles are anticipated)*

*Figure 12: Typical deck screw pattern*



**Figure 11: Typical deck construction (45 x 145mm deck timber where vehicles are anticipated)**  
(not to scale – for guidance only – site specific design required)



**Figure 12: Typical deck screw pattern**  
(not to scale – for guidance only – site specific design required)

### Kerb (edge restraint)

A kerb is a raised side barrier that defines the edges of a boardwalk or viewing platform.

- Kerbs provide the following benefits:
  - delineation for people who are blind and people with low vision
  - restrains bicycles, prams and wheeled mobility devices from running off the edges of a boardwalk or deck
  - prevents wheeled devices from becoming bogged in soft ground, sand or garden beds.

See Figure 13: Typical kerb.



**Figure 13: Typical kerb**  
(for guidance only – site specific design required)

### Balustrade posts / stanchions

Vertical members attached to the substructure to provide support for balustrades, handrails and baluster (infill) material.

#### Top rail

A horizontal member attached near the top of balustrade posts to provide for attachment of handrail and structural integrity for infill material.

#### Middle rail

A horizontal member attached near the middle of posts to provide structural integrity and to provide added protection from risk of falls.

#### Bottom rail

A horizontal member attached near the bottom of posts, near the deck, to provide structural integrity to baluster material. Can act as a kerb rail.

See Figure 14: Typical top, middle and bottom rails.



**Figure 14: Typical top, middle and bottom rails**  
(for guidance only – site specific design required)

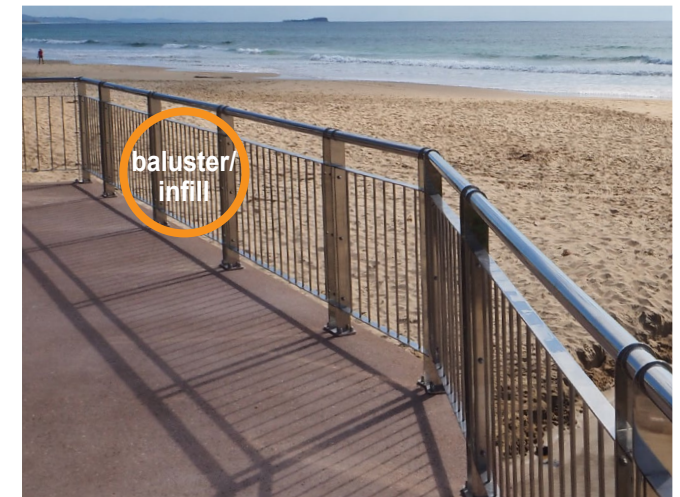
### Baluster (infill)

Baluster infill is a barrier which may consist of a series of vertical balusters. Baluster may include vertical or horizontal posts.

- Balusters are intended to protect users from hazards and falls. The design depends on:
  - the height of the boardwalk / viewing platform above the ground or water.
  - the material immediately below the boardwalk.
  - anticipated risk of falls
  - safety / historical data.

See the following for further guidance:

- Figure 15: Typical baluster (vertical)
- LIM Handrail and balustrades.



**Figure 15: Typical baluster (vertical)**  
(for guidance only – site specific design required)

### Handrail / bicycle rail (rub rail)

Handrail is a rail fixed to posts or a wall for people to hold on to for support or direction. The design must comply with *AS 1428 Design for Access and Mobility*. They also:

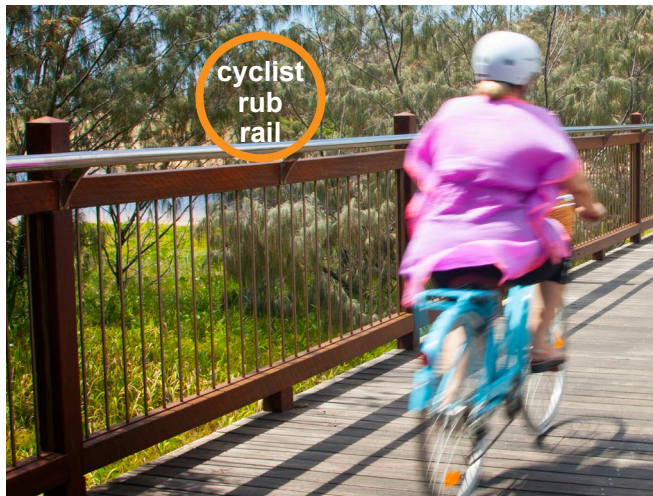
- Prevents falls.
- Provide rest opportunities.
- Confine users to the boardwalk.
- Assist older people and people with a disability.
- Guide people with low vision.

Timber handrail / bicycle rail must shed water.

Bicycle rail is a high rail offset from a barrier for a rest rail and for cyclist safety (see *Austrroads Guidelines*).

See the following for further guidance:

- *Figure 16: Typical handrail / bicycle rail*
- *LIM Handrails and balustrades*.



**Figure 16: Typical handrail / bicycle rail**  
(for guidance only – site specific design required)

### Handrail termination

Terminations of handrail may return to the supporting post fully or partially. They may also return at 90 degrees (if required) to avoid circulation space or path of travel.

- Handrail terminations must not encroach into a traverse path of travel (*AS1428*).

See the following for further guidance:

- *Figure 17: Typical handrail termination*.
- *LIM Handrails and balustrades*.



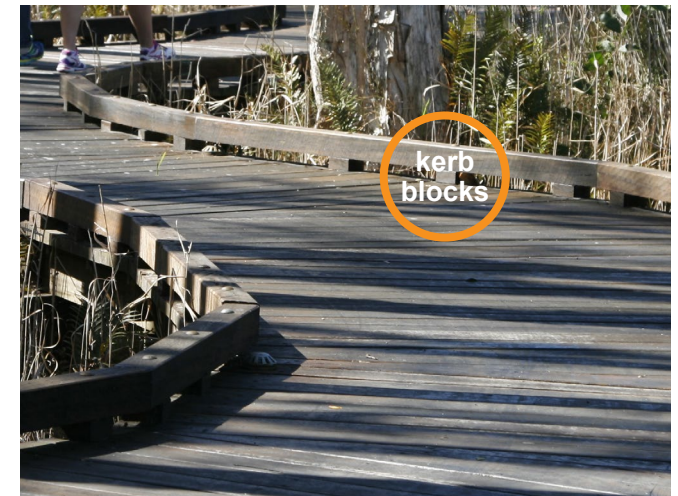
**Figure 17: Typical handrail termination**  
(for guidance only – site specific design required)

### Kerb blocks

Kerb blocks are raised blocks fixed to the decking to elevate a kerb rail. Kerb blocks provide:

- Support to fix a kerb onto low / on ground boardwalks.
- Cleansing drainage flow off a deck.
- Removal of leaf litter from a deck surface.

See *Figure 18: Typical kerb blocks*.



**Figure 18: Typical kerb blocks**  
(for guidance only – site specific design required)

## Ancillary embellishments

### Seats

Seats should be included at regular intervals (60m minimum spacing recommended) along, or alongside a boardwalk and at points of interest (where possible).



- Seating at viewing decks and hides provides an opportunity for rest and to enjoy the scenery.

See *LIM Seats* for further guidance.

### Lighting



Provides safety and extended use of the facility.

- Good lighting design contributes interest and enhances night time experience and activation.
- Design turtle safe lighting at beach side locations and where lighting may impact turtle breeding sites.

See *LIM Electrical* for further guidance.

### Shelter



Provides shade protection for enjoyment of a boardwalk / viewing platform.

See the following for further guidance:

- *LIM Shelters*.
- *Figure 19: Typical optional components*.



**Figure 19: Typical optional components**  
(for guidance only – site specific design required)

## Timber boardwalk construction sequence

Timber boardwalks are typically selected for ease of materials supply and natural appearance for wetlands or environmentally sensitive areas.

Steel posts for the boardwalk are constructed, elevating it above the ground below, then the superstructure is constructed in sections. See *Figure 20 Timber boardwalk construction*.



1: Boxing for concrete pad footing



2: HDG steel posts bolted to footing



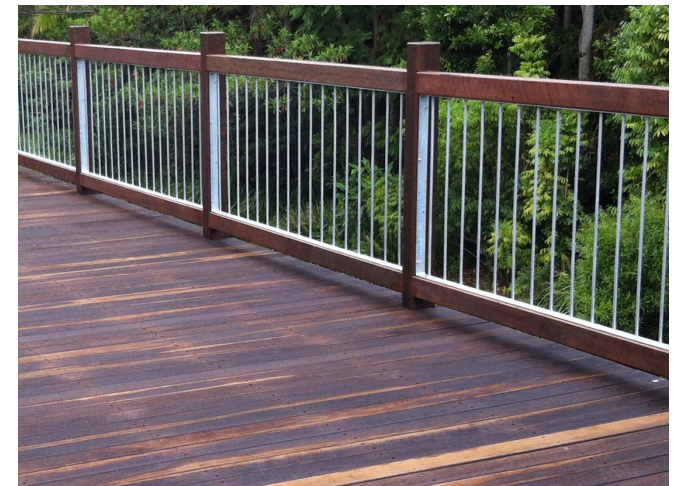
3: Double timber bearers (headstock) bolted to steel post



4: Timber joists lapped and fixed onto bearers. Timber posts for balustrade fixed to double bearers



5: Timber deck screwed onto joists with aluminium tape on top of joists



6: Finished timber deck, post and rail with steel baluster infill

### Figure 20: Timber boardwalk construction

(for guidance only – site specific design required)

## Pre-cast concrete boardwalk construction sequence

To preserve and protect sensitive areas and where ground conditions are suitable, concrete boardwalks can be designed for “top down construction”. Boardwalk components are designed to support construction equipment loads. Boardwalk beams and treads are installed from equipment operating on top of previously installed treads and beams. See *Figure 21 Concrete boardwalk construction*.



1: Boxing and reinforcing for poured in-situ concrete footings



2: Precast concrete stump on poured in-situ footings to support bearers



3: Precast concrete bearers mounted on stump units



4: Precast interlocking concrete deck planks on bearers, secured into channel



5: Concrete deck



6: Recycled plastic kerbs (edge restraint) plus spacer blocks

**Figure 21: Concrete boardwalk construction**  
(for guidance only – site specific design required)

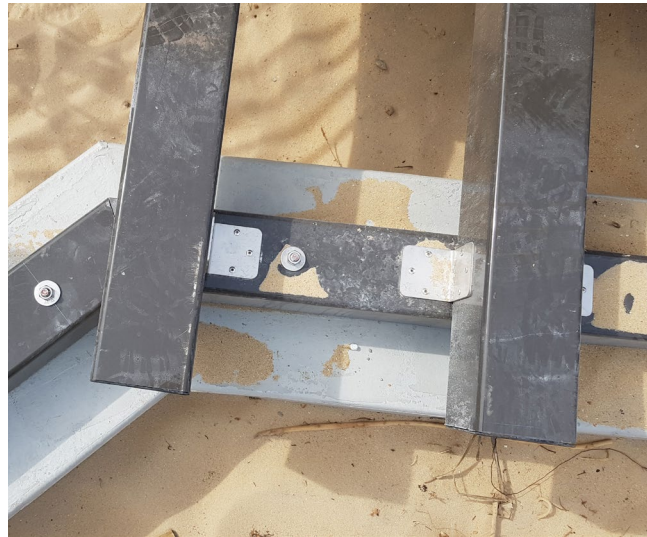
## Timber decking on fibre reinforced plastic (FRP) and concrete construction sequence

Timber boardwalks superstructure elements are selected for ease of materials supply and natural appearance.

Fibre reinforced plastic (FRP) substructure is constructed, above ground level on steel tube core filled epoxy coated piers or set in concrete footings. The timber superstructure is constructed next. See *Figure 22 Timber / FRP boardwalk*.



**1:** Boxing for reinforced concrete strip footings with FRP headstock (bearers) bolted to HDG core filled concrete screw piles, (coated with marine epoxy)



**2:** FRP bearer and joists bolted onto concrete strip footing



**3:** Double FRP headstock bolted onto HDG steel screw piles (concrete core filled)



**4:** FRP joists stainless steel angle bracket fixed to FRP bearers



**5:** Timber deck and edge restraint with stainless steel bolts through timber blocks



**6:** Timber lean rail stainless steel bolts to timber posts

**Figure 22: Timber / FRP boardwalk construction**  
(for guidance only – site specific design required)

## 6.0 Materials, fixings and finishes

### Best practice guidance for the materials, fixings and finishes used in embellishments includes:

Boardwalks and viewing platforms located in aggressive coastal environments or waterlogged areas require materials which provide operational and maintenance benefits.

Timber should be sourced from Australia and from a sustainable source. Timber joists and bearer sizes should be readily available.

Select materials that are:

- Vandal resistant.
- Do not sustain combustion (a combustible material will ignite and burn or will add appreciable heat to an ambient fire).
- Select high quality materials for high use, high profile areas with emphasis on aesthetics and local character.
- Manufactured to engineering specifications (where applicable).
- Do not use 150x150mm timber as posts. This will contain untreated heartwood.
- Stainless steel horizontal wire barrier is not preferred due to increased maintenance requirement (regular tension tightening) and is prone to vandalism (removal).
- Select fixings made of true 304 or 316 marine grade stainless steel.
- Top of joists and all cut ends and timber checks are to have an application of CN oil (or equivalent).
- Select marine grade stainless steel grips, bolts and brackets which allow straightening of timbers.
- Specify CN emulsion (or equivalent).
- Ideally select standardised components such as 38mm thick FRP grate panels.

Table 1: Materials

Materials	Key considerations
Timber	Must be installed with exposure to adequate sunlight to prevent mould build-up and slippery surfaces
	Min treated hardwood (where subject to extreme wetting) with ACQ treatment. Supplier to provide Safety Data Sheet (SDS) for both products. Lanotec or Tanacoat for decking, Ultradeck for handrails and seating (or approved equivalent) protection treatment
	Pre-treatment (for exposed end grain sealing to posts and rails): use wood bonding PVA adhesive
	Becomes slippery when wet and requires ongoing maintenance
	Combustible - ignites and burns slowly
Aluminium	Royal Species Class 1 timbers are ideal for external substructure and decking ie. Ironbark, Spotted Gum, Tallowood, Satinay, Turpentine. Spotted gum is best for decking.
	Suitable for full sun or shaded locations, however the surface may become hot
	Prevent contact between different metals by providing an insulating layer. This will stop the process of one metal corroding preferentially to another (galvanic corrosion)
Concrete	Minimal maintenance. Typically used in substructure, stairs and handrails.
	Suitable for full sun or shaded locations
	Pre-cast boardwalk system such as Rocla PermaTrak (or equivalent), a slip resistant pedestrian surface
Recycled Plastic	More expensive than timber, low maintenance. Excellent whole of life costs.
	Grooved finish for increased slip resistance. Coating available to further increase slip resistance
	Additional time may be required for sourcing of replacement parts
	Suitable for deck boards, kick rails, hand rail and barrier rail. <b>Not suitable for structural elements</b>
Fibre reinforced plastic (FRP)	Suitable for full sun or shaded locations. <b>Highly combustible.</b>
	<b>No historical data available</b>
	Can be installed in shaded areas or full sun – resists mould build-up. Use on beach accesses
	Used for structural elements such as deck panels, joists, bearers, piles
	Durable, cost effective, low maintenance
	<b>May be damaged by fire.</b>

See *Table 1: Materials* for further guidance.

## Deck fixings and fasteners

### General

Materials must be manufactured and constructed to operate in exposed, high energy environments to achieve the required design life. Select stainless steel considering the following:

- **True grade stainless steel** has been graded by ASSDA (Australian Stainless Steel Development Association), and manufactured by an ASSDA accredited manufacturer.
- Stainless steel components must be manufactured to engineering specifications (where applicable).
  - marine grade 316 stainless steel is required in coastal areas east of Bruce Highway.
  - note that stainless steel is low maintenance and has a longer asset life.
  - other material such as 304 grade stainless steel and galvanised steel may be selected for use in hinterland areas west of the Bruce Highway.

### Fixings and fasteners

- Fixings are to include flat washers, spring washers and nuts, secured with thread lock compound (suitable for removal by hand tools). This will prevent loosening of nuts and loss of structural integrity, while allowing replacement of parts.
- Nyloc nuts (or equivalent) are a type of lock nut which contains a nylon collar insert that resists turning. These are preferred to prevent release or loosening of thread joints due to vibration, corrosion or temperature fluctuations.
- Dyna bolts must be installed and tightened to manufacturers recommendations to ensure they do not work loose.

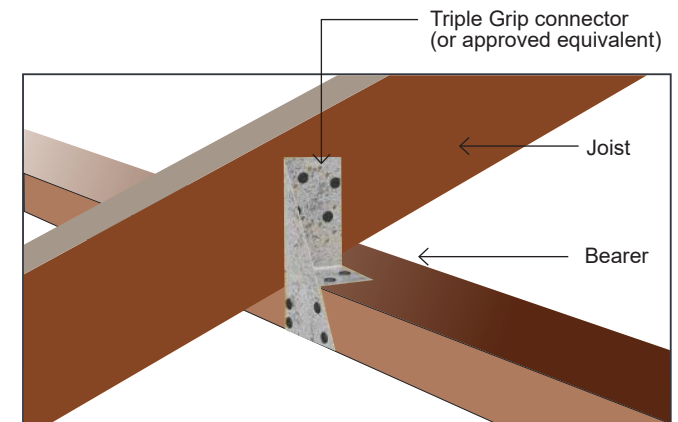
- Pre-grease all bolts with Lanotec lubricant grease (or equivalent) prior to installation.
- At locations where bolts would be in contact with corrosive materials (treated timber) or in pivot points, pre-grease all bolts with Lanotec lubricant grease (or equivalent) prior to installation. Remove excess grease from end of thread before applying locking compounds.
- Excess bolt protrusion is to be covered with a dome nut, to reduce risk of persons scalping skin when walking past.
- Metal brackets are to be flush and free of sharp protruding edges, to avoid injury.
- All fixings (fasteners) are to be checked for tightness prior to handover, and re-tightened where required.

### Deck fixing

- The preference for deck boards is countersunk head stainless steel batten screws (6.3mm diameter, gauge 14), type 304. **Do not ‘over’ countersink** screws as the extra depth holds water.
- Pre-drill holes for fasteners, to avoid splitting joists or decking.
- Keep screws four times the diameter of the screw head from edge boards.
- When face fixing screws, use a staggered alignment at least four times the diameter of the screw head from the edge.
- **No deck fixing in straight lines** as this can cause splitting of joists.
- Deck screws should be true 304 grade stainless steel (preferred), reputable brand only (not 316). Tea staining is desirable to dull the shiny surface. Glare can be a problem for people with low vision.

- Hot dip galvanised fixings may be used in non-coastal areas if they are dipped in Dulux “Durebuild” GPE ZP (or equivalent).
- Hot dipped galvanised bolts must be certified Australian made, and manufactured.
- Vertical bolts should be avoided as they fill with water. Use SS Triple Grip type connections (or approved equivalent).

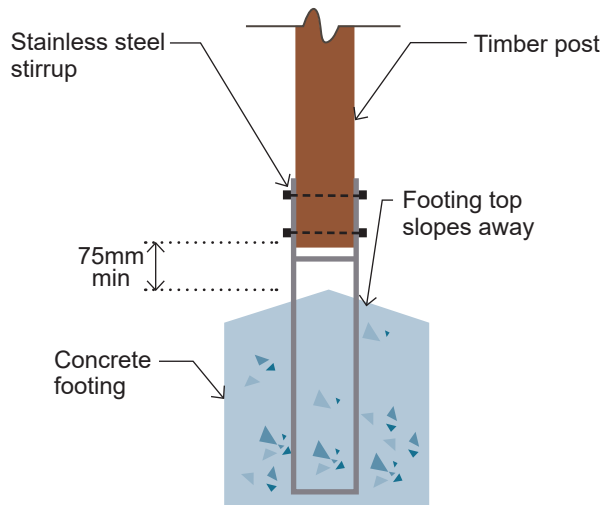
See Figure 23: Typical triple grip joist to bearer detail.



**Figure 23: Typical triple grip joist to bearer detail**  
(not to scale – for guidance only – site specific design required)

### Fixings for treated timber

- Minimum HDG bolts for non-coastal areas (these may rust when fixed into CCA treated hardwood).
- Dip HDG bolts in Dulux GPE ZP (or equivalent) and drill oversize holes.
- HDG especially with cut edges will corrode (within 8-10Km of saltwater).
- Select true 304 or 316 stainless steel bolts or stainless steel threaded rod and large stainless steel washers and nuts.
- Trip L Grips, Multigrips, angles must be minimum true 304 stainless steel.
  - Stainless steel connectors facilitate horizontal bolting to joist and bearer.
  - Joist hangers must be stainless steel.
- Always use 3M (or equivalent) aluminium and bitumen tape on top of joist to prevent water entry.



**Figure 24: Timber post installation**

(not to scale – for guidance only – site specific design required)

### Timber post installation

Fix hardwood posts to a 316 stainless steel stirrup / blade:

- Slope footings away from the post for free drainage.
- A further solution for hardwood posts, (not recommended) is to backfill with no-fines concrete, well agitated to ensure adequate compaction.

See *Figure 24: Timber post installation*.

### Timber preservative treatments

Sapwood is to be treated with Tanalith E (non chrome, non arsenic) in accordance with TUMA (*Timber Utilization and Marketing Act Qld 1987*).

All preservatives may be significantly enhanced by additional coatings to minimise weathering.

### Timber surface coatings

**CN oil (or equivalent)** – robust oil with additional preservatives, intended for commercial decks. Generally used as the first oil coat on decking.

**CN Emulsion (or equivalent)** – a grease like timber preservative to be applied liberally to end-grain, cut and checked timber and timber to timber interfaces.

**Tanacoat (or equivalent)** – a penetrating timber oil which works as a UV blocker and water repellent. Used for re-oiling of existing decks. Suitable for handrails.

- Surface coatings or paints are non-penetrating and can crack at fixings and board ends. They let moisture in but not out and require removal and re-sanding to rectify.

### Materials other than timber

Refer to manufacturer / supplier information for installation and maintenance regime.

## 7.0 Positioning guidance

Best practice guidance for the way embellishments are placed or arranged, includes:

### Site set-out

#### Park users

- Boardwalks and viewing platforms should be located where possible to facilitate and enhance the use of open spaces and recreation parks.

#### Orientation

They should be positioned to provide safe opportunities to observe landscape, flora and fauna:

- Sensitive areas / habitats can be protected from pedestrian traffic.
- Ensure people using boardwalks and viewing platforms have access to supporting infrastructure such as shelter, water, public amenities, car parks.
- Consider locations such as:
  - waterways
  - views
  - points of interest.
- Consider the following site specific conditions:
  - connectivity
  - grades and terrain.

#### Safety

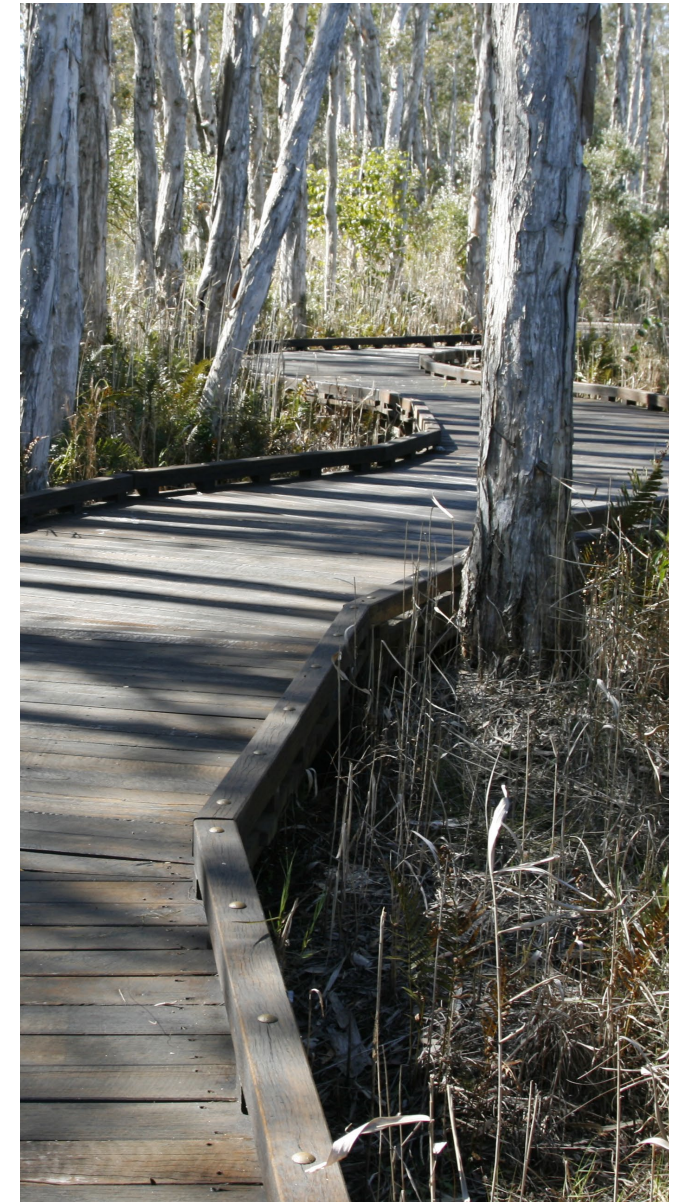
- Crime Prevention through Environmental Design (CPTED) principles apply.

#### Clearances

Position boardwalks and viewing platforms to provide the following offsets:

- Consult Queensland Department of *State Development Infrastructure and Planning (SDIP) – State Assessment and Referral Agency (SARA)* for approvals and offset distances for works within the Coastal Management District.
- Consider mature trees and root systems when designing boardwalks / viewing platform alignment.
- Consider designing a boardwalk to retain and incorporate significant trees within the deck structure.
- Consult a professional arborist for site specific advice about suitable offset distances from existing tree trunks and root systems.

See *LIM Preliminaries – Tree sensitive design (existing and new trees)* for further guidance.



## 8.0 Equal access requirements

Implement equal access for all users by adopting the following principles:

**The Disability Discrimination Act (DDA) defines 'premises' as the whole of the built environment and includes existing buildings, new or proposed buildings, transport systems, car parks, pathways, and public parks and gardens.**

**Note:**

Consult an access consultant accredited by the Association of Consultants in Access Australia (ACAA)

### Elements required for equal access

- Embellishments must be designed in accordance with *AS1428 Design for Access and Mobility*.
  - Design boardwalks and viewing platforms which comply for design dimensions and installation provisions with *AS 1428.4.1:2009 Design for Access and Mobility Part 1: General requirements for access - New building work*.
- Consider both the beginning and the end of a journey, together with a continuous accessible path of travel (CAPT) through an environment.
- Deck planks must run perpendicular to the direction of travel to avoid “tramlining” of wheeled devices.
- Install seats off the path of travel (500mm minimum offset), at intervals to provide rest opportunities (recommended 60m intervals). Consider a wide range of abilities and seat heights.
- Install equal access shelters (sufficient circulation space for wheelchairs and extra height tables to allow wheelchair access under) over viewing platforms to provide sun protection.

- Avoid finished height difference between a concrete slab and adjoining surfaces to prevent trip hazards and to prevent ‘tramlining’ of pram, bicycle and wheelchair wheels.

### Kerb (edge restraint)

- Provides delineation for people who are blind (white cane users) and people with low vision.
- Restrains bicycles, strollers and wheeled mobility devices such as scooters.
- Recommend edge restraints have a minimum 30% luminance contrast with the boardwalk or deck surface.
- Install kerb both sides. Consider that where the edge of a low boardwalk joins soft sand or garden bed, wheeled mobility devices can become bogged or the occupant can be tipped out.

### Handrails

- Assist older people and disabled people.
- Guide people with low vision.

### Leaning rails

- Provide support and rest opportunities and to assist people with limited mobility.

### Balustrade and baluster infill panel

- Protects people from the risk of falls.

### Deck abutment of surfaces

- Deck surface construction tolerances relative to adjacent surfaces are to be no greater than:
  - 3.0mm vertical or;
  - 5.0mm vertical for bevelled or rounded edges.
- Maximum 10mm gap in decking boards (after shrinkage).
- Ensure boardwalks and viewing platforms connect to a continuous accessible path of travel (CAPT) with a smooth transition.

### Visual / sensory wayfinding

- For people with a vision impairment, provide a minimum 30% luminance contrast between objects and the background they are viewed against, for ease of identification.
  - Where luminance contrast may not be achieved (such as grey aluminium furniture on grey concrete), luminance contrast can be addressed by introducing colour into the ground surface providing a minimum 30% luminance contrast with the embellishment base, resulting in the embellishment being more visible for people who have low vision.
- Consider designing nodes with a contrasting coloured concrete, or a variation in surface texture, to enable people with a disability to identify the location of embellishments along a pathway.

## 9.0 Recommended standards

Embellishment design, manufacture and installation require an appropriately qualified professional to provide site specific solutions.

Where Australian Standards or part thereof have been adopted by legislation, they are a legal requirement.

Embellishments should satisfy the following requirements, including but not limited to:

### Note:

Please refer to the relevant authority websites for updated information and current document distribution dates. These documents are subject to amendments from time to time.

### Legislation

Refer [Legislation](#) for guidance.

### Australian Standards / industry guidelines

#### National Construction Code (NCC)

Boardwalks and viewing platforms shall be developed in accordance with the NCC (*current edition*):

- *Building Code of Australia (BCA) Volumes 1 and 2*
- *Plumbing code of Australia (PCA) Volume 3.*

#### Safety in design (SiD)

Include Safety in Design (SiD) principles to eliminate, or if not reasonably practical, minimise risks to health and safety throughout the design, construction and life of the embellishment.

See *Legislation – Work Place Health and Safety Act 2011* for additional safety guidance.

### Boardwalks and viewing platforms

#### Design

- *Austroads Guide to Road design Part 6A: Pedestrian and Cyclist Paths*. Guidelines for the geometric design of paths for pedestrians & cyclists, includes safety offsets.
- *Austroads 2004 Bridge Design* – Uniformly distributed load (light wheeled vehicles).
- *AS 1657:2013 – Fixed platforms, walkways, stairways and ladders – Design, construction and installation*. Design of fixed platforms, walkways, stairways for inspection, maintenance and servicing personnel.
- *AS 5100:2017 Series Bridge Design*. Requirements for new bridges and other structures.
- *Design Criteria for Bridges and Other Structures Feb 2018 - Department of Transport and Main Roads. Requirements for the design of bridges and other road related structures*
- *AS 1170.Set 2007 Structural design actions – (Loading Code)*.
- *Design Criteria for Floating Walkways and pontoons: October 2015 – Department of Transport and Main Roads*. Design for modular floating walkways that are to be constructed on boat ramps lanes and standalone pontoons with gangways.
- *AS 4997: 2005 – Guidelines for the design of maritime structures*. Design of structures in a marine environment.
- *Outdoor Structures Australia Boardwalk design Guide by Edgar Stubbersfield and timber guidelines* (or approved equivalent). Free guideline for the construction of timber boardwalks and a range of free timber advisory notes.

#### Footings

- *AS 3600:2009 – Concrete structures*. Minimum requirements for plain concrete pedestals and footings.

#### Barrier

- *AS 1170.1:2002 Part 1 Structural design actions, Section 3.6 Barriers*. Includes parapets, balustrades and railings, together with members and connections that provide structural support.
- *AS 2156 Set:*
  - *AS 2156.1: 2001 – Walking tracks – Part 1 – Classification and signage*. A classification system for walking tracks to inform AS 2156.2.
  - *AS 2156.2-2001 – Walking tracks – Part 2 – Infrastructure design*. Requirements for the structural design of walking track structures.

See *LIM Handrails and Balustrades* for further guidance

#### Surfaces

- *AS 3661.2:1994 – Slip resistance of pedestrian surfaces – Guide to the reduction of slip hazards*. Guidance on the selection, installation, care and maintenance of surfaces in public areas for the purpose of reducing the slip hazard to pedestrians.
- *AS 4586:2013 – Slip resistance classification of new pedestrian surface materials*. Provides means of classifying pedestrian surface materials according to their frictional characteristics when determined in accordance with the test methods set out in Appendices A, B, C, D and E. The test methods enable characteristics of surface materials to be determined in either wet or dry conditions. *This Standard is referenced in legislation.*

- *AS 4663:2013 – Slip resistance measurement of existing pedestrian surfaces.* Provides methods of measuring the frictional characteristics of existing pedestrian surfaces in wet and dry conditions.
- *HB 197:1999 – Standards Australia Handbook - An introductory guide to the slip resistance of pedestrian surface materials.* Provides guidelines for the selection of slip-resistant pedestrian surfaces classified in accordance with AS / NZS 4586.
- *SA HB 198:2014 – Standards Australia Handbook - Guide to the specification and testing of slip resistance of pedestrian surfaces.* Provides guidance for designers, specifiers, manufacturers and suppliers in the application of AS 4586:2013 and AS 4663:2013.

### Coatings

- *ISO 12944-1:2017 Paints and varnishes Corrosion protection of steel structures by protective paint systems.* A general statement on health, safety and environmental protection, and guidelines for using ISO 12944 (all parts) for a given project.

### Designing for shade

- *Creating Shade at Public Facilities: Policy and Guidelines for Local Government Edition 2 prepared by Australian Institute of Environmental Health.* Technical resource containing guidelines about 'essential' and 'preferred' quantities of shade at public facilities.

### Designing for access and inclusion

- *AS 1428 Set – Design for Access and Mobility.* Design requirements for new building work to provide access for people with disabilities. This Standard is reference in legislation.

### Designing for safety (CPTED)

- *Queensland Government – Crime Prevention through Environmental Design (CPTED) – Guidelines for Queensland, 2007.* Guidelines about designing a safe environment to assist in the prevention of the opportunity for crime.

### Erosion and sediment control

- *Erosion and Sediment Control, International Erosion Control Association (IECA), 2008.* International Erosion Control Association Best Practice Erosion and Sediment Control (BPESC) documents.

### Trees

- *AS 4373-2007 – Pruning of Amenity Trees.* Specifies methods for pruning trees and gives guidance on correct and uniform practices.
- *AS 4970-2009 – Protection of Trees on Development Sites.* Provides guidance on the principles for protecting trees on land subject to development.

### Approvals / authorised person

#### Assessable development

- Where an embellishment is considered 'assessable development', building approval is required from a private building certifier and must meet all of the

requirements of the *Building Regulation 2006*, the *Building Code of Australia (current edition)* and the *Sunshine Coast Planning Scheme 2014*.

### QBCC licensed builder

In Queensland, individuals and companies must hold a Queensland Building and Construction Commission (QBCC) license to carry out:

- Any building work valued over the QBCC amount (includes all labour and materials costs regardless of who supplies the materials).

### Certification

In addition to the standard information listed above, at practical completion, the contractor must supply technical specifications for structure and including, but not limited to:

- Structural certification by a registered professional engineer of Queensland (RPEQ) is required for all boardwalks and viewing platforms.
- All inspections, final approvals and documentation must be certified by a suitably qualified engineer detailing:
  - That the design, construction and installation of the structure has been undertaken to the manufacturers specifications in compliance with:
    - Australian Standards
    - All other relevant statutory requirements codes, regulations and standards.
- Building certification is required for all boardwalks and viewing platforms. The contractor installing the structure is to organise a private certifier as part of the contract, site specific due to differing topography and shielding class.

### **Coastal management district**

- Ensure appropriate environmental approvals are obtained and the conditions observed where any building work is proposed in the coastal Management District.
- Consult with Queensland Government Department of State Development, Infrastructure and Planning (SDIP) – State Assessment and Referral Agency (SARA) for application forms, guidelines and information sheets.

### **Other**

- Department of Transport and Main Roads (TMR) approval is required for works near state controlled roads. This applies to any part of the road reserve including pathways, kerb and channelling, nature strip and traffic island.
- Ensure all relevant approvals are obtained from the appropriate governing bodies and all conditions are observed.

## **SC Council additional requirements**

### **Corporate documents**

Refer [Overview of corporate documents](#) for guidance.

### **Corporate liaison**

#### **Developer delivered assets**

- SCC Development Services – all works associated with any development application.

#### **Council delivered assets**

- SCC Civil Asset Management – maintenance, construction and asset management services for all road and related infrastructure assets.
- SCC Parks and Gardens – recreation parks, amenity reserves, linear parks, landscape corridors, sports grounds and recreation trails enquiries relating to asset management, business planning and direction.
- SCC Environmental Operations – recreation trails, foreshore infrastructure, environment reserves, constructed waterbodies and wetlands.
- SCC Design and Placemaking Services – recreation parks, amenity reserves, linear parks, landscape corridors, sports grounds and recreation trails and streetscape / centres enquiries relating to design.
- SCC Transport Infrastructure Management – technical and design solutions to facilitate ongoing management and safe operations of roads and assets. Water management and drainage solutions.

## **10.0 Sustainability**

Refer [Design principles – Sustainability](#) for guidance.

## 11.0 Project management and maintenance

### Documentation

The submission of design documentation and technical specifications for each item (where applicable), is to include, but not be limited to:

- **Approvals, searches, compliant drawings and documentation** – written compliance with relevant legislation, Australian Standards and corporate documents (including specifications and access and mobility requirements)
- **Preliminary site setup** (refer LIM category) – compliance with safety, tree protection, erosion and sediment control measures
- **Technical information** – the manufacturer’s product, installation, inspection, warranties and maintenance information
- **Materials** – specification of materials
- **Schedule of finishes**
- **Engineered design and any required certifications**
- **Unusual requirements** for handling or installation and competency requirements
- **Workplace health and safety plan**, where applicable
- **Environmental management plan (EMP)** and / or **erosion and sediment control plan**, where applicable.

### Practical completion – technical information to be supplied:

At practical completion, the contractor must supply technical specifications, including but not limited to:

- **Certification** – inspections, final approvals and documentation
- **As constructed drawings** and specifications which should detail the location of any sub-surface services (e.g. drainage, electrical)
- **Operational manuals** – inspection / maintenance details including parts and service manuals, and manufacturer’s guarantees
- **Construction and / or maintenance tools** including non-standard maintenance tools for bolt tightening and replacement parts
- **All required signage** should be installed prior to hand-over of the asset, where applicable
- **Manufacturer’s guarantees / warranties** and any other documents or items, including quality management compliance and accreditation.

#### Note:

As-constructed drawings and ADAC file must be submitted at practical completion. GIS require this information to update their records on the asset register and other sources.

### Maintenance period and / or defects liability period

#### Developer delivered assets

The development maintenance period and requirements are nominated in the conditions of approval (decision notice).

#### Council delivered assets

The maintenance period and requirements are nominated in the letter of appointment of contractor (contract).

Prior to the end of the pre-determined maintenance period or defects liability period, a **‘pre-handover inspection’** should be conducted by an authorised council officer. The following items will apply:

- *Compliance Audit*
- *Rectification Action Plan (RAP)* is provided identifying any faults and non-compliance
- *RAP* items are to be rectified prior to handover.

## Sunshine Coast Open Space Landscape Infrastructure Manual DISCLAIMER

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